

# Notice of Allowability

Application No.

10/609,096

Examiner

George Nguyen

Applicant(s)

KUHN ET AL.

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendment filed on 11/22/04.
2. ☒ The allowed claim(s) is/are 1,2,4-13,15-17,19,20,25-28,30-37,39,42-46 and 48-54.
3. ☒ The drawings filed on 27 June 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

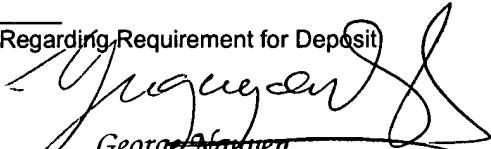
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date Attached.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date attached.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
George Nguyen  
Primary Examiner

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Mike Amerson on March 04, 2005.

The application has been amended as follows:

**Canceled claims 14, 38, 47 and 55.**

In claim 1, line 4, after "polishing pad" deleted ".", and inserted thereof "wherein a direction of said fluid jet is substantially perpendicularly to a plane substantially parallel to a surface of said polishing pad.".

In claim 13, line 2, before "plane" changed "a" to "said", and after "plane" deleted "substantially parallel ... polishing pad.".

In claim 25, line 5, after "polishing pad" deleted ".", and inserted thereof "wherein a direction of said fluid jet is substantially perpendicularly to a plane substantially parallel to a surface of said polishing pad.".

In claim 37, line 2, before "plane" changed "a" to "said", and after "plane" deleted "substantially parallel ... polishing pad.".

In claim 44, line 4, after "nozzle" inserted ", having arcuate shaped opening.".

In claim 46, line 2, after "nozzles" first occurrence, inserted "having arcuate shape opening.".

In claim 50, line 3, after "pressure" inserted "pad conditioning".

2. The following changes to the drawings have been approved by the examiner and agreed upon by applicant: Applicant is required to submit a new drawing to show the "nozzle having arcuate shaped opening" as claimed in claims 44 and 46. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

The following is an examiner's statement of reasons for allowance: the specific limitations of "at least one nozzle ... said polishing pad." in the combination as claimed in claim 1, "supplying a high pressure fluid ... said polishing pad." in the combination as claimed in claim 25, "at least one nozzle, having arcuate shaped opening ... said polishing pad" in the combination as claimed in claim 44, and "supplying a high pressure pad conditioning fluid ... said polishing pad" in the combination as claimed in claim 50 are not anticipated nor made obvious by the prior art of record in the examiner's opinion. For example, regarding to claims 1 and 25, Bombardier et al.'5,154,021 discloses pneumatic pad conditioner having a thin slot extending along the length of the pipe 18 in lieu of perforations. The thin slot directs the air downwardly against the fibers of the polishing pad at angle approximately 45 degree in the direction of rotation of the platen.

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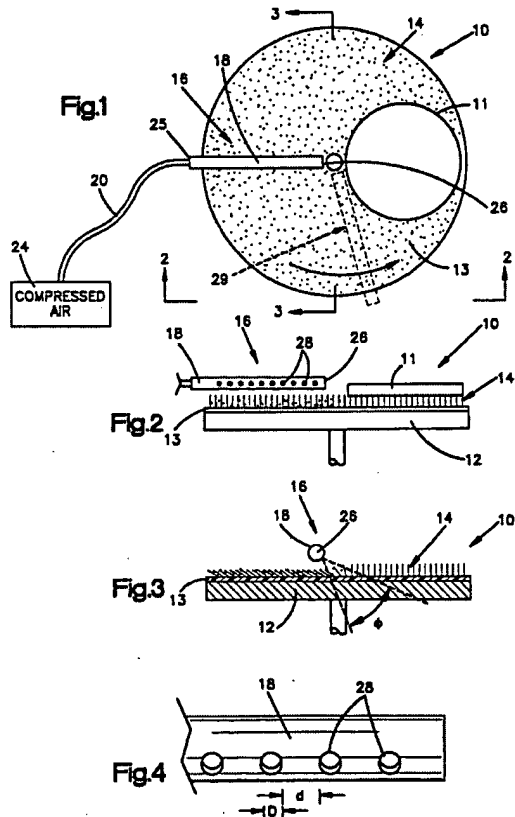
As illustrated in FIGS. 2 and 4, a plurality of perforations, as indicated at 28, are formed in the wall of the pipe 18. Each of the perforations 28 has a diameter  $D$ . The perforations are preferably equally spaced at  $d$  intervals along the length of the pipe 18. The distance  $d$  between the edges of the perforations and the diameter of the perforations is preferably equal. It has been determined that for the above-described process the diameter  $D$  and distance  $d$  should be approximately  $\frac{1}{8}$ ". Alternatively, it is also within the scope of the invention to provide a thin slot extending along the length of the pipe in lieu of the perforations.

The air supply 24 is conventional in design and provides compressed air (or other appropriate gas or liquid) through the flexible tube 20 to the inlet port 25 of the pipe 18. The air fills the pipe and is forced through the perforations 28 in a substantially uniform stream. The perforations 28 direct the air downwardly against the fibers on the polishing pad at an angle  $\phi$  (FIG. 3), which angle is approximately  $45^\circ$  in the direction of rotation of the platen.

U.S. Patent

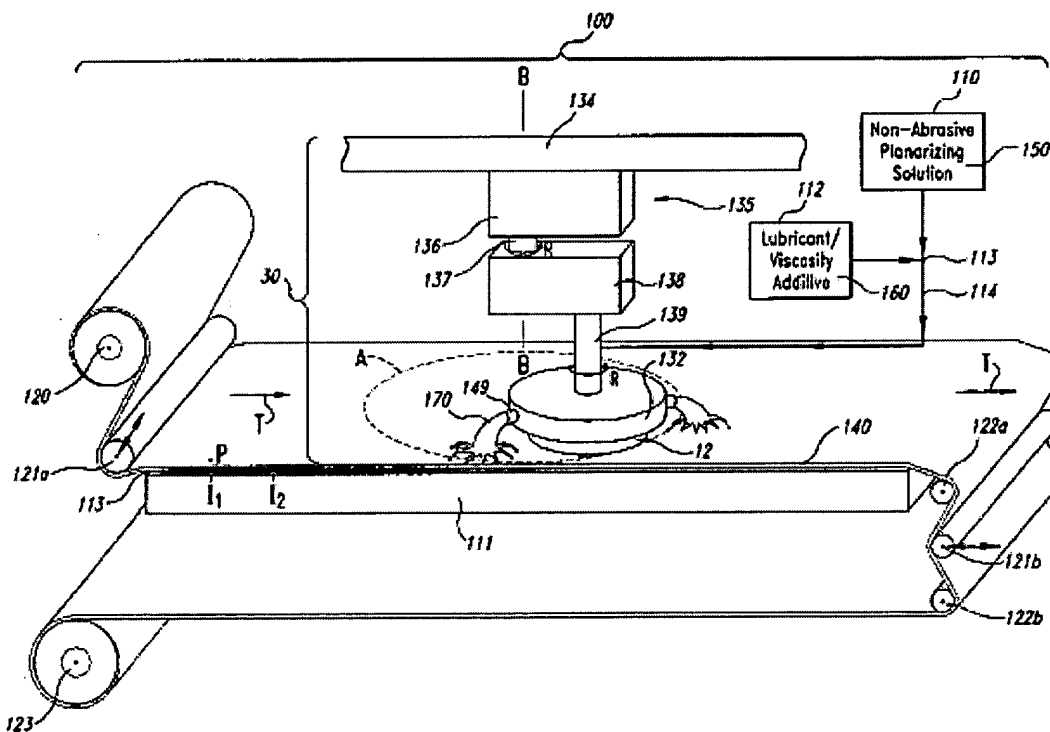
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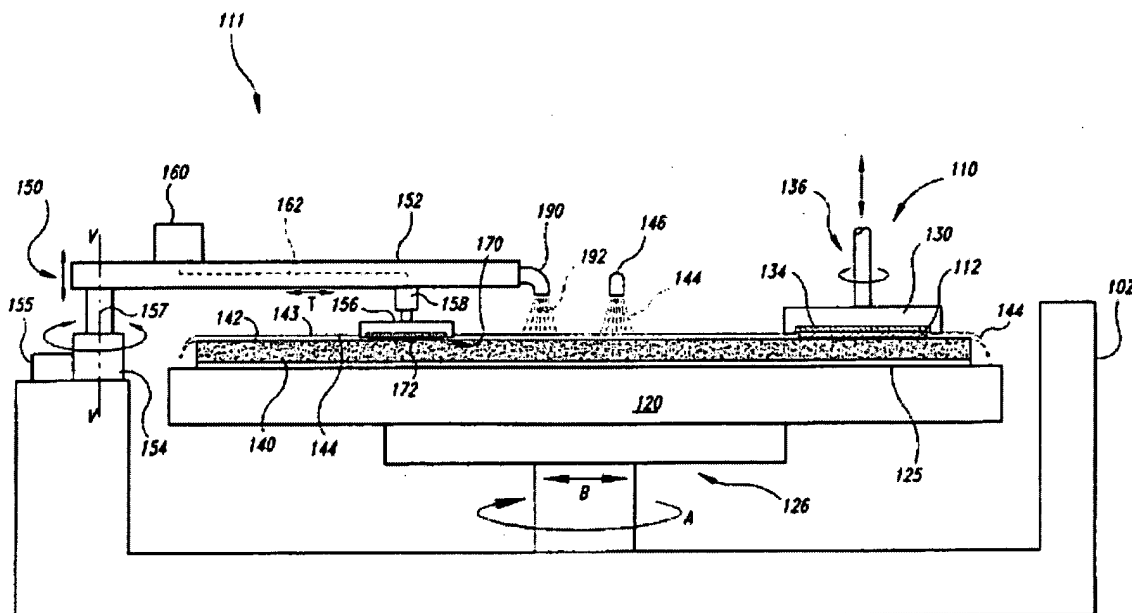
However, the prior art of record fails to provide or suggest the specific limitations of “at least one nozzle ... said polishing pad” in the combination as claimed in claim 1, “supplying a high pressure fluid ... said polishing pad” in the combination as claimed in claim 25.

Regarding to claims 44 and 50, Sabde'6,306,012 discloses methods and apparatus for planarizing substrates assemblies. The apparatus includes a polishing head 132 having at least one nozzle 149 coupled thereon to provide a lubricating planarizing solution 170 onto the fixed abrasive polishing pad.



With reference to Figure 3, Southwick '5,782,675 discloses an apparatus 150 for conditioning fixed-abrasive polishing pad. Apparatus 150 includes an arcuate shaped

nozzle 190 having a circular opening to inject conditioning fluid 192 into the polishing pad. Said nozzle 190 coupled to arm 152 which carries a conditioning head 156.



However, the prior art of record fails to provide or suggest the specific limitations of “at least one nozzle, having arcuate shaped opening, ... said polishing pad” in the combination as claimed in claim 44, and “supplying a high pressure pad conditioning fluid ... said polishing pad” in the combination as claimed in claim 50.

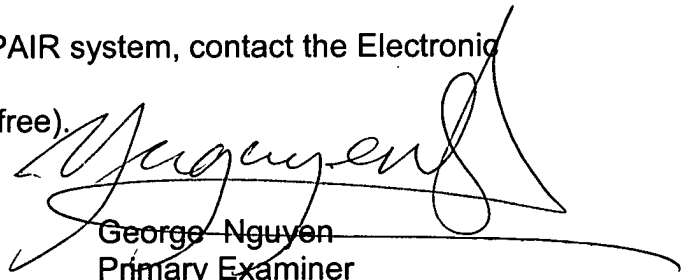
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Nguyen whose telephone number is 571-272-4491. The examiner can normally be reached on Monday-Friday/630AM-300PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*George Nguyen*  
*Primary Examiner*

  
George Nguyen  
Primary Examiner  
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GN – March 02, 2005